



**QUEEN'S
UNIVERSITY
BELFAST**

Improving the practice of cataract surgical outcome measurement

Congdon, N., Dodson, S., Chan, V. F., Mathenge, W., & Moo, E. (2019). Improving the practice of cataract surgical outcome measurement. *Community Eye Health*, 31(104), 91-92.

Published in:
Community Eye Health

Document Version:
Publisher's PDF, also known as Version of record

Queen's University Belfast - Research Portal:
[Link to publication record in Queen's University Belfast Research Portal](#)

Publisher rights

© 2019 The Authors.

This is an open access Creative Commons Attribution-NonCommercial License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits use, distribution and reproduction for non-commercial purposes, provided the author and source are cited.

General rights

Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact openaccess@qub.ac.uk.

Improving the practice of cataract surgical outcome measurement



Nathan Congdon
Ulverscroft Chair of Global Eye Health: Queens University Belfast & Orbis International, Royal Victoria Hospital, Belfast, Ireland, UK.



Sarity Dodson
Global Lead – Development Effectiveness: The Fred Hollows Foundation, Sydney, Australia.



Ving Fai Chan
Research Manager: Brien Holden Vision Institute, Durban, South Africa.



Wanjiku Mathenge
Consultant Ophthalmologist and Director of Training and Research: Rwanda National Institute of Ophthalmology and Dr Agarwal's Eye Hospital, Kigali, Rwanda.



Elise Moo
Global Research Coordinator: The Fred Hollows Foundation, Sydney, Australia.

A successful cataract outcome monitoring and continuous quality improvement system will assist practitioners and centres to identify and implement ongoing improvements in eye care delivery.



Monitoring surgical quality allows clinicians and administrators to identify issues and take action to improve practice, outcomes and performance. LAOS

A study from Kenya¹ showed that monitoring the visual outcomes of cataract surgery is associated with improving those outcomes. This suggests that we need to know how well our patients see after surgery to have the motivation and information to improve surgical results. Tools to help with this monitoring process, both paper-based and computer-based, have been developed and made freely available.² However, the practice of monitoring outcomes has not yet become a routine part of running ophthalmic services other than in situations where it is demanded by regulatory authorities or funding agencies.

Why does measurement of cataract surgical quality matter?

Despite the availability of effective and inexpensive surgery, unoperated cataract is responsible for 35% of global blindness.³ The cataract blindness problem is further worsened by poor surgical outcomes, particularly in low resource settings.⁴

Quality of surgery and resulting patient satisfaction are the engines that drive sustainable cataract services. Monitoring surgical quality allows clinicians and healthcare administrators to identify issues and take action to improve practice, patient outcomes and

centre performance because “if you measure it, you can manage it.” Outcome reporting, however, varies widely across surgical centres internationally⁵ and many countries where data is available fall well below World Health Organization (WHO) standards for cataract surgical outcomes.⁶

Why don't we routinely measure cataract surgical outcomes?

There are several challenges associated with routine measurement of cataract outcomes, including:

- Pressure on clinicians to generate high volume of surgical outputs
- Weak culture of quality assurance in surgical centres
- Low access to systems and tools to support continuous quality improvement
- Concern about management of complex cases
- Low rates of patient follow-up, because of the challenges getting patients to return to surgical sites several weeks following their procedure.⁷

However, these issues can be addressed by setting up a good cataract outcome monitoring and continuous quality improvement (CQI) system. This can assist practitioners and centres to identify and implement ongoing improvements in eye care delivery.

Table 1 Standards for postoperative visual acuity

	PRECOG standards for postoperative assessment (1–3 days after surgery)	WHO standards for postoperative assessment (6 weeks after surgery)
Good (6/6–6/18)	>60%	>80%
Borderline (<6/18–6/60)	<35%	<15%
Poor (<6/60)	<5%	<5%

What needs to be in place?

The essential elements of a successful outcome monitoring and continuous quality improvement (CQI) system that can assist practitioners and centres to identify and implement ongoing improvements in eye care delivery are described below.

1 Quality standards

Defining a 'good' outcome, especially with modern small-incision surgery, is the foundation of an effective CQI system. The World Health Organization (WHO) provides standards for postoperative acuity at 6 weeks⁶ (see Table 1).

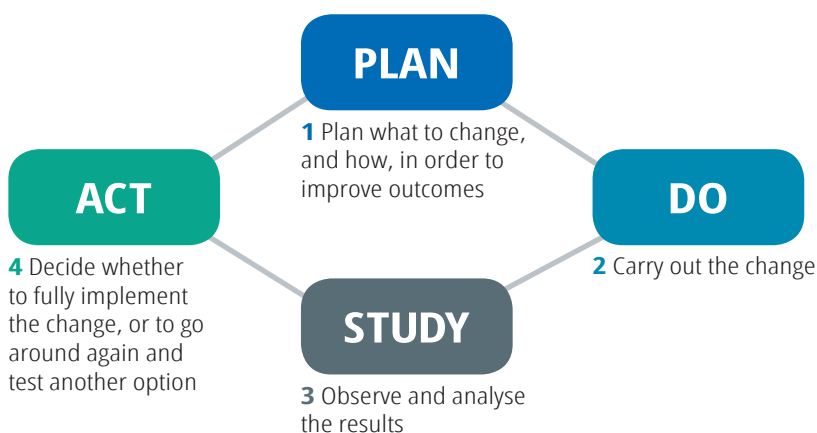
The PRECOG study⁷ has demonstrated that visual acuity results the day after surgery are highly predictive of final vision. Outcomes can, therefore, also be measured 1 to 3 days after surgery. This measure of the quality of surgical outcomes is equivalent to WHO standards, but may be more convenient for many surgeons and patients, particularly in areas with low postoperative follow-up rates, (e.g., when patients have to travel long distances).

Table 1 shows the PRECOG standards for postoperative assessment 1–3 days after surgery alongside WHO standards for postoperative assessment 6 weeks after surgery.

2 Timely and routine data capture

Effective, accessible and easy-to-use data collection tools, whether electronic or on paper, improve data quality and reduce the burden of monitoring activities on clinicians and administrators.

Figure 1 The Plan-Do-Study-Act model of continuous quality improvement



3 Accessible reports

Simple, visual reports of key results encourage surgeons and administrators to engage meaningfully with outcome data.

4 Feedback and interpretation of results

Interpret the results and give supportive, non-blaming feedback to surgeons. This is an opportunity to identify potential corrective actions.

5 Ongoing improvement processes

Ongoing improvement processes make up the critical final element. High quality data and ideas regarding practice and system change can only improve outcomes if they are acted upon.

References

- 1 Yorston D, Gichuhi S, Wood M, et al. Does prospective monitoring improve cataract surgery outcomes in Africa? *Br J Ophthalmol* 2002;86:543–547.
- 2 Limburg H. Monitoring cataract surgical outcomes: methods and tools. *Community Eye Health* 2002;15:51–53.
- 3 Bourne RR, Flaxman SR, Braithwaite T, et al. Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis. *Lancet Glob H* 2017; 5(9):e888–e897.
- 4 Zaidi FH, Corbett MC, Burton BJ, et al. Raising the benchmark for the 21st century—the 1000 cataract operations audit and survey: outcomes. *Br J Ophthalmol* 2007; 91:731–736.
- 5 Michelotti M, de Korne DF, Weizer JS, et al. Mapping standard ophthalmic outcome sets to metrics currently reported in eight eye hospitals. *BMC Ophthalmol* 2017;17(269):1–8.
- 6 Ramke J, Gilbert CE, Lee AC, et al. Effective cataract surgical coverage: An indicator for measuring quality-of-care in the context of Universal Health Coverage. *PLOS One* 2017;12(3):e0172342.
- 7 Congdon N, Yan X, Lansingh V, et al. Assessment of cataract surgical outcomes in settings where follow-up is poor: PRECOG, a multicentre observational study. *Lancet Glob H* 2013; 1(1):e37–e45.

The BOOST cataract app

BOOST (Better Operative Outcomes Software Tool) is a free Android and online app that allows surgeons to easily capture key cataract outcome data. It provides simple, engaging reports and provides feedback to users about how they can improve their performance.

BOOST is an international effort, and is available in seven different languages: English, French, Spanish, Russian, Chinese, Vietnamese and Bahasa Indonesia.

It can be downloaded at the Google Play Store by searching for 'BOOST Cataract', and data can be accessed online at <https://boostcataract.org/>

BOOST takes users through two simple steps designed to evaluate and improve cataract surgical results.

Step 1 Benchmarking

Using BOOST, surgeons enter the uncorrected visual acuity on postoperative day 1 for 60 consecutive operated eyes. The app then tells surgeons how their results compare (anonymously) with other users globally.

Step 2 Quality improvement

The BOOST app then asks users to record the results of 20 consecutive patients with poor results ($\leq 6/60$) at least 6 weeks after surgery. In each case, the user is prompted to choose one of three reasons for the poor result:

- Surgical complication
- The presence of another blinding condition (such as glaucoma, ARMD, DR, etc.)
- Refractive problems (wrong power IOL, lack of any IOL, etc.)

The app determines what the most common cause of poor vision is for any given user, and then makes specific recommendations to improve outcomes.

For example, if the most common cause is the presence of other diseases, the app recommends specific ways to address this problem, such as a thorough preoperative examination of the eye, including the fundus, with dilation of the pupil after checking for an afferent pupillary defect.

Tips for using the app

To get the most out of the app, you need to be honest with yourself about the data you enter. Remember two things:

- 1 Enter data from consecutive patients, which means you need to enter every cataract case you do (no combined cases or paediatric cataract cases), unless the patient is known to have a problem in addition to cataract.
- 2 Vision should be measured and entered by someone other than the operative surgeon.

